

REMARKS

Status

This Amendment is responsive to the Office Action dated March 22, 2007, in which Claims 1-23 were finally rejected. No claims have been canceled; Claims 1, 12, and 23 have been amended; and no new claims have been added. Accordingly, Claims 1-23 are pending in the application, and are presented for reconsideration and allowance.

Claim Rejection - 35 USC 102

Claims 1 and 12 stand rejected under 35 USC 102 as being anticipated by US Patent Application Publication No. 2002/0177779 (*Adler*). This rejection is respectfully traversed.

The present invention is directed to the real-time automatic abnormality detection of in vivo images, wherein the detection, analysis, and signal processing begins as the in vivo images become available, for example, as an image capsule is still traveling through the GI tract. Refer to the Specification at Page 6, lines 12-19.

As claimed in independent Claim 1 of the present invention, an examination bundle of a patient is formed. This bundle includes (1) real-time captured in vivo images and (2) image specific metadata relating to only a portion of a gastrointestinal tract at a specific time. The metadata is described in the Specification at Page 6, line 20 through Page 7, line 24 indicating that the examination bundle 200 includes image packets 202 and metadata 204. The image packet 202 comprises pixel data 208 and image specific metadata 210 (for example, image specific collection data 212, image specific physical data 214, and inferred image specific data 216). Metadata 204 includes such information as the date of the examination, the patient identification, the name or identification of the referring physician, the purpose of the examination, suspected abnormalities and/or detection, and any information pertinent to the examination bundle 200. The general metadata 204 can also include general image information such as image storage format (e.g., TIFF or JPEG), number of lines, and number of pixels per line.

Adler does not teach or suggest forming a bundle with such metadata.

Adler analyzes images for color content to determine the presence or absence of a colorimetric abnormality (see *Adler*, Paragraph [0022]). The data analyzed by *Adler* is the image only – no image specific metadata is provided. Refer to *Adler* at Paragraph [0021] stating that: “Transmitter 41 transmits images to image receiver 12, which send the data to data processor 14 and to storage unit 19. Data processor 14 analyzes the data and is in communication with storage unit 19, transferring frame data to and from storage unit 19.”. As such, the data being analyzed is the image data, not any metadata. Indeed, there is no discussion in *Adler* about image specific metadata. *Adler* is analyzing solely the images for color content. *Adler*’s image analysis is further described at Paragraphs [0025] and [0026], and such analysis does not include the use of image specific metadata.

For the reasons set forth above, Claim 1 is not anticipated by *Adler*, and is therefore believed to be patentable over *Adler*.

Independent Claim 12 includes the feature of “means for forming an examination bundle of a patient that includes real-time captured in vivo images and image specific metadata relating to only a portion of a gastrointestinal tract at a specific time”. Thus, the same arguments set forth above with regard to Claim 1 are equally applicable with respect to the rejection of independent Claim 12. As such, Claim 12 is also believed to be patentable.

Claim Rejection - 35 USC 103 – *Meron/Adler*

Claims 1, 7, 9-12, 18, and 20-23 stand rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,950,690 (*Meron*) in view of US Patent Application Publication No. 2002/0177779 (*Adler*). This rejection is respectfully traversed.

As indicated above, Claim 1 of the present invention recites the formation of an examination bundle of a patient. This bundle includes (1) real-time captured in vivo images and (2) image specific metadata relating to only a portion of a gastrointestinal tract at a specific time. The metadata is described in the Specification at Page 6, line 20 through Page 7, line 24 indicating that the

examination bundle 200 includes image packets 202 and metadata 204. The image packet 202 comprises pixel data 208 and image specific metadata 210, for example, image specific collection data 212, image specific physical data 214, and inferred image specific data 216. Image specific collection data 212 includes information such as the frame index number, frame capture rate, frame capture time, and frame exposure level. Image specific physical data 214 includes information such as the relative position of the capsule 112 when the image was captured, the distance traveled from the position of initial image capture, the instantaneous velocity of the capsule 112, capsule orientation, and non-image sensed characteristics such as pH, pressure, temperature, and impedance. Inferred image specific data 216 includes location and description of detected abnormalities within the image, and any pathologies that have been identified. This data can be obtained either from a physician or by automated methods.

As described above, *Adler* does not discuss such image specific metadata. In addition, contrary to the Office Action's position, *Meron* also does not disclose such image specific metadata. *Meron* describes the operation of two monitors – a position monitor “on which the current location of the capsule 60 within the digestive system is recorded, and, optionally displayed” and an image monitor which displays the image viewed by the capsule (Col. 6, lines 19-34). However, no discussion of metadata is provided and there is no discussion of the data being tagged with the images -- more particularly, there is no discussion of image specific metadata as defined by applicant.

Accordingly, even if the two references were combined as suggested by the Office Action, the present invention would not result since neither reference teaches or describes a feature claimed in Claim 1. As such, Claim 1 is not obvious from the cited references, whether taken along or in combination, and is believed to be patentable.

Independent Claims 12 and 23 include means for forming an examination bundle of a patient that includes real-time captured in vivo images and image specific metadata relating to only a portion of a gastrointestinal tract at a specific time. Thus, the same arguments set forth above with regard to Claim 1 are equally applicable with respect to the rejection of independent Claims 12 and

23. As such, Claims 12 and 23 are also believed to be patentable over the cited references.

Claims 7, 9-11, 18, and 20-22 are dependent on either Claim 1 or 12, and therefore include all the features thereof. For the reasons set forth above with regard to Claims 1 and 12, Claims 7, 9-11, 18, and 20-22 are also believed to be patentable.

Claim Rejection - 35 USC 103 - *Merón/Adler/Wortmann*

Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meron and Adler and in further view of U.S. 2003/0149680 (*Wortmann*). This rejection is respectfully traversed.

Claims 2 and 13 are dependent on either Claim 1 or 12, and therefore include all the features thereof. For the reasons set forth above with regard to Claims 1 and 12, Claims 2 and 13 are also believed to be patentable.

Claim Rejection - 35 USC 103 - *Merón/Adler/Zhang*

Claims 6, 8, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meron and Adler and in further view of U.S. Patent No. 6,181,810 (*Zhang*). This rejection is respectfully traversed.

Claims 6, 8, 17, and 19 are dependent on either Claim 1 or 12, and therefore include all the features thereof. For the reasons set forth above with regard to Claims 1 and 12, Claims 6, 8, 17, and 19 are also believed to be patentable.

Claim Rejection - 35 USC 103 - *Merón/Adler/Christensen*

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meron and Adler in view of U.S. Patent No. 6,243,502 (*Christensen*). This rejection is respectfully traversed.

Claim 3 is dependent on Claim 1, and therefore includes all the features thereof. For the reasons set forth above with regard to Claim 1, Claim 3 is also believed to be patentable.

Claim Rejection - 35 USC 103 - *Meron/Adler/Christensen/Qian*

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Meron* and *Adler* and *Christensen* and in further view of U.S. Patent No. 6,332,033 (*Qian*). This rejection is respectfully traversed.

Claims 4 and 5 are dependent on either Claim 1 or 12, and therefore include all the features thereof. For the reasons set forth above with regard to Claims 1 and 12, Claims 4 and 5 are also believed to be patentable.

Claim Rejection - 35 USC 103 - *Meron/Adler/Christensen*

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Meron* and *Adler* in view of *Christensen*. This rejection is respectfully traversed.

Claim 14 is dependent on Claim 12, and therefore includes all the features thereof. For the reasons set forth above with regard to Claim 12, Claim 14 is also believed to be patentable.

Claim Rejection - 35 USC 103 - *Meron/Adler/Christensen/Qian*

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Meron* and *Adler* and *Christensen* and in further view of *Qian*. This rejection is respectfully traversed.

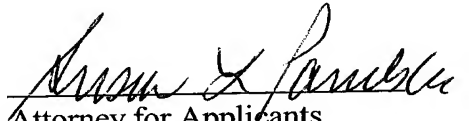
Claims 15 and 16 are dependent on Claim 12, and therefore include all the features thereof. For the reasons set forth above with regard to Claim 12, Claims 15 and 16 are also believed to be patentable.

Summary

Should the Examiner consider that additional amendments are necessary to place the application in condition for allowance, the favor is requested of a telephone call to the undersigned counsel for the purpose of discussing such amendments.

For the reasons set forth above, it is believed that the application is in condition for allowance. Accordingly, reconsideration and favorable action are respectfully solicited.

Respectfully submitted,


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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Carestream Health, Inc. at 585/724-9490 or 585/724-9409.